Electronic Version
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Claims

[c1] 1. A blood-pressure monitoring device, comprising:
a thin-film, pressure-monitoring module comprising a pressure-sensitive region;
an optical module comprising an optical source and an optical detector; and
a microprocessor configured to receive and process information from the thin-film, pressure-monitoring module and the optical module to determine blood pressure.

[c2] 2. The blood-pressure monitoring device of claim 1, wherein the pressure-sensitive region comprises a material characterized by pressure-dependent electrical properties.

[c3] 3. The blood-pressure monitoring device of claim 1, wherein the pressure-monitoring module comprises a plastic film that encases the pressure-sensitive region.

[c4] 4. The blood-pressure monitoring device of claim 1, wherein the optical source is a laser or a light-emitting diode.

[c5] 5. The blood-pressure monitoring device of claim 1, wherein the optical detector is a photodiode.

[c6] 6. The blood-pressure monitoring device of claim 1, further comprising a finger-mounted component that comprises the optical module.

[c7] 7. The blood-pressure monitoring device of claim 6, wherein the finger-mounted component is an annular ring.

[c8] 8. The blood-pressure monitoring device of claim 1, further comprising a wrist-mounted component that comprises the thin-film pressure-monitoring module.

[c9] 9. The blood-pressure monitoring device of claim 1, further comprising a short-range wireless transmitter.

[c10] 10. The blood-pressure monitoring device of claim 9, wherein the short-range wireless transmitter is a radio-frequency transmitter operating a Bluetooth™, part-15, or 802.11 wireless protocol.

[c11] 11. The blood-pressure monitoring device of claim 1, further comprising an external, secondary wireless component.

[c12] 12. The blood-pressure monitoring device of claim 11, wherein the external, secondary wireless component comprises a short-range wireless receiver.

[c13] 13. The blood-pressure monitoring device of claim 12, wherein the short-range wireless receiver is a radio-frequency receiver operating a Bluetooth™, part-15, or 802.11 wireless protocol.

[c14] 14. The blood-pressure monitoring device of claim 11, wherein the external, secondary wireless component further comprises a long-range wireless transmitter.

[c15] 15. The blood-pressure monitoring device of claim 14, wherein the long-range wireless transmitter is configured to transmit information over a terrestrial, satellite, or 802.11-based wireless network.

[c16] 16. The blood-pressure monitoring device of claim 15, wherein the long-range wireless transmitter is configured to transmit data over a wireless network operating on at least one of the following protocols: CDMA, GSM, GPRS, Mobitex, DataTac, iDEN, and analogs and derivatives thereof.

[c17] 17. The blood-pressure monitoring device of claim 1, wherein the pressure-monitoring module is configured to generate a pressure waveform.

[c18] 18. The blood-pressure monitoring device of claim 17, wherein the optical module is configured to generate an optical waveform.

[c19] 19. The blood-pressure monitoring device of claim 18, wherein the microprocessor comprises computer-readable code that processes both the optical and pressure waveforms to determine blood pressure.